

Serial Number 09/930,572  
Attorney Docket No.: Pinkham-767RE

**IN THE SPECIFICATION:**

Please amend the last paragraph starting at line 50 of column 1 as follows:

Fluid can flow through the prior art valve assembly 10 depicted in FIG. 1A in any one of the three directions depicted in FIGS. 1B-1D. The fluid flow is represented by arrows 25 in these figures. In FIG. 1B, which represents the forward product flow through the column, valve 14a is opened allowing the fluid to flow from the process piping into the valve assembly 10. Valve 16a is also opened allowing the fluid to flow into the chromatography column (not shown). The fluid returns from the chromatography column passing through valve 16b and recentering the valve assembly. The fluid leaves the valve assembly passing through valve 14b on its path back to the process piping. Valves 12a and 12b remain closed during this process. According to the reverse process flow depicted in FIG. 1C, fluid entering the valve assembly 10 from the process piping can flow through valves 12a and 16b into the column, returning from the column through valve 16a, and exiting the valve assembly through valve ~~[[12a]]~~ 12b back through the process piping. Valves 14a and 14b remain closed during this process. The column may be bypassed altogether according to the process flow depicted in FIG. 1D, where the liquid entering into the valve assembly from the process piping encounters opened valves 12a, 14a, 12b and 14b, exiting the valve assembly without entering the chromatography column which remains inaccessible by closing valves 16a and 16b.

Please amend the fifth full paragraph of column 3 starting at line 24 as follows:

FIG. 3B is an enlarged cross-sectional view through line ~~[[A-A]]~~ 3B-3B of FIG. 3A;

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Please amend the last paragraph of column 3 starting at line 36 as follows:

Referring to FIG. 2, there is shown a perspective view of the instant invention chromatography valve assembly 30. The valve assembly 30 comprises a unitarily formed valve body 32, which may be cast or machined from iron, bronze, stainless steel or aluminum, or may be molded from a suitable plastic or plastic composite material. The outer body 32 is generally that of an octahedral pyramid having a octagonal base 34, a square top surface 36, and a combination of triangular 35 and distorted hexagonal 48 side faces. The top square surface 36 is planar and mounted thereon is the first of five manual bonnet assemblies 38, 39, 40, 41, 42 for manually controlling the operation of the underlying valves. The operation of manual bonnets in diverter valve assemblies is well known to those skilled in the art, and is explained, for example, in afore-described U.S. Pat. No. 5,273,075, the specification of which is incorporated herein by reference. It should be noted that although manual bonnet assemblies are shown, other means such as pneumatic or electrical actuators may be mounted on the outer valve body in order to control the valves, thereby eliminating the need for the manual bonnets. The manual bonnets as shown are affixed to the valve body via plates 44, each plate having four suitable screw-type fasteners 46. Extending downwardly and outwardly from each edge of the top square surface 36 of the valve body 32 is a distorted hexagonal side face 48, each side face being planar and having a manual bonnet mounted thereon. These side faces are angled at approximately ~~22°~~ (specifically 22.21°) 30° with respect to the octagonal base of the valve body. The reason for the particular angled mounting of the additional four bonnet assemblies 39, 40, 41, 42 has to do with valve drainage concerns, and will also be explained in detail later.

Please amend the paragraph starting at column 4, line 9 as follows:

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Referring now to FIG. 3A, there is shown a top view of the valve assembly, minus the manual bonnets and with a partial cross-sectional view of the underlying channel network drawn in with broken lines. As can be seen in this figure, ports 50, 52, 54 and 56 are arranged at angles of approximately 90° with respect to each other on opposing ends of the octagonal base section of the valve assembly. Each port opens into a chamber in the valve assembly 30-port 50 opening into chamber 60, port 52 opening into chamber 62, port 54 opening into chamber 64, and port 56 opening into chamber 66. Fluid entering any of the ports encounters a chamber and channels leading to up to three diverter valves. Fluid entering port 52, for example, encounters chamber 62 and channels leading to two diverter valves 70 and 72. Where as fluid Fluid entering port 50, for example, encounters chamber 60 and channels leading to three diverter valves 70, 76 and 78. The smooth and tortuous network of passageways that lead through the valve assembly connect the ports with the chambers and valves in a such a way that the valve assembly is fully drainable as will be later explained. The flow of the fluid is controlled by the diverter valves 70, 72, 74, 76, 78 and may be adjusted to permit specific flow directions which, in combination with the smooth and tortuous passageways, eliminate dead-legs from the system.

Please amend the third paragraph of column 4 starting at line 31 as follows:

Referring now to FIG. 3B, there is shown an enlarged cross-sectional view of the valve assembly through line ~~[[A-A]]~~ 3B-3B of FIG. 3A. As can be seen in the figure, port 50 opens into chamber 60. A passageway 55 leading to diverter valve 76 can also be seen in this figure. Chamber 60 is connected to chamber 64 via diverter valve 78. The passageway that connects these two chamber is inclined, rising sharply before encountering diverter valve 78. The passageway that connects these two chamber is inclined, rising sharply before encountering diverter valve 78 and then falling sharply after encountering the valve. The angle of inclination

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63 measured from either side of the diverter valve 78 is approximately 30°. In chamber 64, a passageway 65 leading to diverter valve 74 can be seen. Finally in this figure, port 54 can be seen as opening into chamber 64.

Please amend the fourth paragraph of column 4 starting at line 44 as follows:

Referring now to FIG. 3C, there is shown an enlarged side elevational view of the instant invention valve assembly 30. This particular side elevational view of the instant invention valve assembly 30. This particular side elevational view is directed down port 50 which is disposed on triangular surface 35. As explained above, port 50 opens into chamber 60 which is connected by channels to diverter valves 70, 76 and 78. In this figure, diverter valves 70 and 76 can be seen on opposite sides of port 50, being disposed beneath the afore-described distorted hexagonal side faces 48. These diverter valves, as well as diverter valves 72 and 74 (not shown in this figure), are machined in the position of their drain angle which is approximately ~~22° (specifically 22.21°)~~ 30° as measured from the octagonal base of the valve assembly. This arrangement, coupled with the fact that valve 78 (as seen in FIG. 3B) is at a high point in the valve assembly, allows the valve assembly 30 to be fully and easily drainable. Ports 56 and 52 are also clearly visible in this figure.